

WHAT IS CLAIMED IS:

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Sub B1
1. A programmed computer system for creating and maintaining one or more backup copies of electronic data, comprising:

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means to determine whether a mirror copy exists of particular source electronic data, including operating system software, files, directories, and/or physical storage volumes;

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means to create a mirror copy of said particular electronic data, if such a mirror copy does not already exist, on a volume and/or storage device other than the volume and/or storage device on which the said particular source electronic data is stored;

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means to duplicate all file operations directed to said particular source electronic data on the mirror copy of the electronic data.

2. The programmed computer system for creating and maintaining one or more backup copies of electronic data of claim 1 further comprising:

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means to copy said mirrored copy after duplicate file operations have been performed as a date-stamped, time-stamped version;

means to maintain multiple versions of said mirror copies;

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means to provide a computer user with an opportunity to select one of said versions for restoration as primary version of said electronic data;

means for communicating the data storage location of said selected version of electronic data to a computer operating system;

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means for translating the data storage location of said selected version of electronic data to one or more application software programs so that said application software programs do not detect any change in the location of said electronic data;

means for said application software programs to request said operating system to access said selected version of electronic data as if said electronic data is located at the source storage location;

means for redirecting said operating system from said source electronic data storage location to said selected version storage location in order to provide said operating system with access to said electronic data at said selected version storage location.

3. The programmed computer system for creating and maintaining one or more backup copies of electronic data of claim 1 wherein said means to duplicate all file operations is performed every time the operating system attempts to perform a file operation on said particular source electronic data.

4. A programmed computer system for creating and maintaining a single virtual logical volume of electronic data space with electronic data storage space located on a plurality of physical storage volumes, comprising:

means for identifying the physical location of available free electronic data storage space on a plurality of physical storage volumes;

means for communicating said available free electronic data storage space locations to a computer operating system;

means for said operating system to access said available free electronic data storage space physically

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located on a plurality of storage volumes as if the space appeared on a single volume.

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5. A programmed computer system for creating and maintaining a single virtual logical file of electronic data from electronic data located on a plurality of physical storage volumes, comprising:

10 means for identifying the physical storage locations of a particular logical file of electronic data stored on a plurality of physical storage volumes;

means for communicating said electronic data storage locations to a computer operating system;

15 means for said operating system to access said electronic data physically located on a plurality of storage volumes as if the data appeared on a single volume.

20 6. A method for creating and maintaining one or more backup copies of electronic data, comprising the steps:

determining whether a mirror copy exists of particular source electronic data, including operating system software, files, directories, and/or physical storage volumes;

25 creating a mirror copy of said particular electronic data, if such a mirror copy does not already exist, on a volume and/or storage device other than the volume and/or storage device on which the said particular source electronic data is stored;

30 duplicating all file operations directed to said particular source electronic data on the mirror copy of the electronic data.

7. A method for creating and maintaining a single virtual logical volume of electronic data space with

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electronic data storage space located on a plurality of physical storage volumes, comprising the steps:

5 identifying the physical location of available free electronic data storage space on a plurality of physical storage volumes;

communicating said available free electronic data storage space locations to a computer operating system;

10 accessing said available free electronic data storage space physically located on a plurality of storage volumes by said operating system as if the space appeared on a single volume.

15 8. A method for creating and maintaining a single virtual logical file of electronic data from electronic data located on a plurality of physical storage volumes, comprising the steps:

20 identifying the physical storage locations of a particular logical file of electronic data stored on a plurality of physical storage volumes;

communicating said electronic data storage locations to a computer operating system;

25 accessing said electronic data physically located on a plurality of storage volumes by said operating system as if the data appeared on a single volume.

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